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concl.

8 links, wherein each node of the N linked nodes is a
9 computer-readable document containing information;
10 (b) computing an approximation p_n to a steady-state probability
11 p_∞ , wherein each component of p_∞ represents a probability
12 that the user will randomly end up a given node after a
13 large number of forward links, in accordance with the
14 equation $p_n = A^n p_0$, where A is an NxN transition
15 probability matrix having elements $A[i][j]$ representing a
16 probability of moving from node i to node j; and
17 (c) determining a rank $r[k]$ for a node k from a k^{th} component of
18 p_n , wherein $r[k]$ represents an importance of the
19 information contained in node k.

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1 8. (AMENDED) A computer implemented method for assigning a
2 rank to N nodes of a linked database stored in a computer-
3 readable medium, wherein each node contains computer-readable
4 information, the method comprising calculating, for a node, a
5 weighted sum of ranks of backlink nodes to the node, wherein
6 each of the backlink nodes is weighted in dependence upon the
7 total number of links in the backlink node, wherein the rank
8 assigned to a given node represents an importance to a user
9 of the information contained in the node.

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1 Kindly add the following new claims:

1 --9. (NEW) A computer implemented method for calculating an
2 importance rank for each of N linked web page documents, the
3 method comprising the steps of:

- 4
- 5 (a) selecting an initial N-dimensional vector \mathbf{p}_0 wherein each
6 component of \mathbf{p}_0 represents an initial estimate of a
7 probability that a user arrive at a given web page document
8 after a large number of forward links;
- 9 (b) computing an approximation \mathbf{p}_n to a steady-state probability
10 \mathbf{p}_∞ , wherein each component of \mathbf{p}_∞ represents an improved
11 estimate of a probability that the user will randomly at a
12 given web page document, in accordance with the equation \mathbf{p}_n
13 $= \mathbf{A}^n \mathbf{p}_0$, where \mathbf{A} is an NxN transition probability matrix
14 having elements $\mathbf{A}[i][j]$ representing a probability of
15 moving from web page document i to web page document j, and
- 16 (c) determining a rank $r[k]$ for a web page document k from a k^{th}
17 component of \mathbf{p}_n , wherein $r[k]$ represents an importance of
18 the information contained in a particular web page document
19 k.

1 10. (NEW) The method of claim 9 wherein the matrix \mathbf{A} is chosen
2 so that an importance rank of a given web page document is
3 calculated, in part, from a weighted sum of importance
4 ranks of web page documents backlinked to the given web
5 page document.

1 11. (NEW) The method of claim 10 wherein the importance ranks
2 of each of the backlinked web page documents is weighted in
3 dependence upon the total number of links in the backlinked
4 web page document.

1 12. (NEW) The method of claim 9 wherein the matrix **A** is chosen
2 so that an importance rank of a web page document is
3 calculated, in part, from a constant α representing the
4 probability that a surfer will randomly jump to the web
5 page document.

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cont. 1 13. (NEW) The method of claim 9 wherein the matrix **A** is chosen
2 so that an importance rank of a web page document is
3 calculated, in part, from a measure of distances between
4 the web page document and backlink nodes of the web page
5 document.

1 14. (NEW) The method of claim 9 wherein the initial N-
2 dimensional vector **p**₀ is selected to represent a uniform
3 probability distribution.

1 15. (NEW) The method of claim 9 wherein the initial N-
2 dimensional vector **p**₀ is selected to represent a non-
3 uniform probability distribution, wherein a predetermined
4 set of web page documents is given a relatively large
5 initial probability.

1 16. (NEW) A computer implemented method of ranking a
2 plurality of linked documents, comprising:

3 obtaining a plurality of linked documents;

4 for each linked document pointed to by a link in one or
5 more of the plurality of linked documents, assigning a rank
6 to the linked document that is dependent on ranks of the one
7 or more of the plurality of linked documents; and

8 processing the linked documents according to their rank.

1 17. (NEW) The method of claim 16, wherein the rank
2 assigned to the linked document is dependent on the sum of the
3 ranks of the one or more of the plurality of linked documents.

1 18. (NEW) The method of claim 16, wherein each of the
2 ranks of the one or more of the plurality of linked documents
3 are adjusted by a weight.

1 19. (NEW) The method of claim 18, wherein the weight is
2 dependent on the number of links in the one or more of the
3 plurality of linked documents.

1 20. (NEW) The method of claim 18, wherein the weight is
2 dependent on an estimation of a probability that a linked
3 document will be accessed.

1 21. (NEW) The method of claim 18, wherein the weight is
2 dependent on the URL, host, domain, author, institution, or

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3 last update time of the one or more plurality of linked
4 documents.

1 22. (NEW) The method of claim 18, wherein the weight is
2 dependent on whether the one or more plurality of linked
3 documents are selected documents or roots.

1 23. (NEW) The method of claim 18, wherein the weight is
2 dependent on the importance, visibility or textual emphasis of
3 the links in the one or more of the plurality of linked
4 documents.

1 24. (NEW) The method of claim 18, wherein the weight is
2 dependent on a particular user's preferences, the rate at which
3 users access the one or more plurality of linked documents, or
4 the importance of the one or more plurality of linked documents.

5 25. (NEW) The method of claim 16, wherein the processing
2 includes displaying links to the linked documents as results
3 from a search.

1 26. (NEW) The method of claim 16, wherein the processing
2 includes crawling the linked documents.

1 27. (NEW) The method of claim 16, wherein the processing
2 includes displaying links to the linked documents as a directory
3 listing.

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1 28. (NEW) The method of claim 16, further comprising:
2 generating an initial estimate of the rank of each of the
3 one or more plurality of linked documents; and
4 updating the estimate of the rank for each of the one or
5 more plurality of linked documents utilizing estimates of ranks
6 for linked documents that include a link to the linked document.

1 29. (NEW) The method of claim 16, wherein the processing
2 includes displaying links to the linked documents and
3 annotations representing the relative importance or rank of each
4 of the linked documents.

1 30. (NEW) The method of claim 29, wherein the annotations
2 are bars, icons or text.

1 31. (NEW) The method of claim 16, wherein the linked
2 documents are also processed according to textual matching.

1 32. (NEW) The method of claim 31, wherein the textual
2 matching includes anchor text associated with the links.

1 33. (NEW) The method of claim 16, wherein the linked
2 documents are also processed according to groupings of the
3 linked documents.

1 34. (NEW) A computer implemented method of ranking a
2 plurality of linked documents, comprising:

3 performing a random traversal of a plurality of linked
4 documents;

5 for each linked document that is traversed, assigning a
6 rank to the linked document that is dependent on the number of
7 times the linked document has been traversed; and

8 processing the plurality of linked documents according to
9 their rank.

13 cont.
1 35. (NEW) The method of claim 34, wherein the rank is also
2 dependent on the number of linked documents that have been
3 traversed.

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1 36. (NEW) The method of claim 34, wherein performing a
2 random traversal includes selecting a random link according to a
3 distribution to traverse in a current linked document.

11 10
1 37. (NEW) The method of claim 36, wherein there is a
2 predetermined probability that the next linked document
3 to be traversed will be a random one according to a
4 distribution of the plurality of linked documents.--